(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 271 835 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: 87118381.0

(51) Int. Cl.4: G07C 9/00

(22) Date of filing: 11.12.87

(30) Priority: 19.12.86 JP 301816/86

(43) Date of publication of application: 22.06.88 Bulletin 88/25

(84) Designated Contracting States: DE FR GB

(71) Applicant: HITACHI, LTD.
6, Kanda Surugadai 4-chome
Chiyoda-ku Tokyo 101(JP)

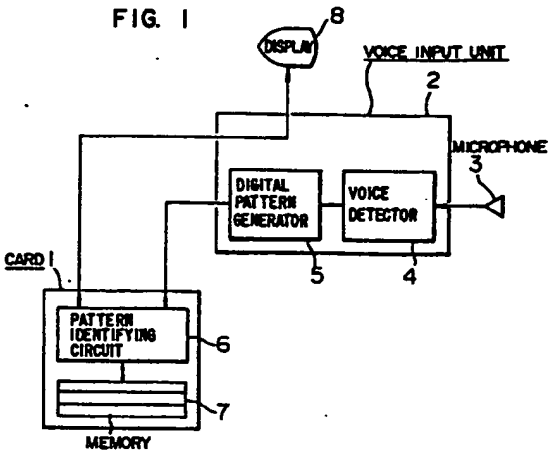
(72) Inventor: Mizutani, Yuushi
167-12, Minamiyana
Hadano-shi(JP)

(74) Representative: Altenburg, Udo, Dipl.-Phys. et al
Patent- und Rechtsanwälte
Bardehle-Pagenberg-Dost-Altenburg
Frohwitter-Geissler & Partner Galileiplatz 1
Postfach 86 06 20
D-8000 München 86(DE)

(54) Personal voice pattern carrying card system.

(57) A voice pattern carrying card system for applications where voice information input is prerequisite for operation. A card (1) is employed which stores therein voice patterns uttered by the processor of the card and corresponding to a plurality of character information such as key label characters of a keyboard or idioms used frequently by the possessor of the card. In the state the card is inserted in a voice input apparatus (2), the possessor of card utters character information to be inputted in the form of voice. When pattern of the voice is detected, the voice pattern same as the detected one is retrieved from the card (1), whereby the character information to be inputted is transferred to a computer word processor or the like.

FIG. 1



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PERSONAL VOICE PATTERN CARRYING CARD SYSTEM

BACKGROUND OF THE INVENTION

The present invention generally relates to a personal voice pattern carrying card system and more particularly to a voice pattern recognition apparatus which is capable of identifying a person by recognizing discriminatively voice information produced by that person through comparison with a voice pattern stored previously in a card.

Heretofore, the voice pattern recognition in a voice information input apparatus has been commonly realized by storing a standardized voice pattern or those of particular persons. As a typical one of the prior known techniques concerning the system for processing voice pattern information stored in a card, there can be mentioned a voice pattern recognition system disclosed in Japanese Patent Application Laid-Open No. 90367/1981 (JP-A-56-90367), by way of example.

In case a standardized voice pattern is stored in the hitherto known voice information input apparatus such as metnioned above, a great difficulty is encountered in establishing or confirming correspondence between the voice pattern produced by a person and the standardized voice pattern as stored, involving errors in the recognition to disadvantage. On the other hand, when voice patterns of particular persons are stored in the voice input apparatus, there arises a problem that the number of the persons which can be identified by the apparatus is much limited. There is also known a system in which the voice pattern is stored in a card, the application of which system is, however, restricted only to the recognition of the person carrying the card.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a personal voice pattern carrying card system which can be used by many and unspecified persons to input voice information for identification without involving any significant errors.

In view of the above and other objects which will become more apparent as description proceeds, it is proposed according to an aspect of the invention that voice patterns corresponding to a plurality of character information such as those available on a keyboard or the like are stored in a card. The card thus prepared is placed in the voice input apparatus for utilization, being followed by utterance of character information to be inputted in the form of voice. The voice information input apparatus analyses the uttered character information to create a voice pattern corresponding to the input character information and detects the same voice pattern by retrieving it from those stored in the card mentioned above. Since the card stores therein the character information in correspondence with the voice pattern, the character information corresponding to the detected voice pattern can be utilized as the input information to a computer, word processor or the like.

The above and other objects, manners of operation, novel features and advantages of the present invention can be fully understood upon consideration of the following detailed description of the preferred embodiments of the invention taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a view showing in a block diagram a general arrangement of a personal voice pattern storing card system according to an exemplary embodiment of the present invention; and

Fig. 2 is a view showing in a block diagram a general structure of the personal voice pattern storing card system according to another embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Now, the personal voice pattern storing card system according to the present invention will be described in detail in conjunction with an exemplary embodiment thereof by referring to the accompanying drawings.

Referring to Fig. 1 showing an arrangement of the personal voice pattern storing card system according to an embodiment of the invention, a reference numeral 1 denotes a card storing a personal voice pattern of a user, 2 denotes a voice input apparatus, 3 denotes a microphone, 4 denotes a voice detecting circuit, 5 denotes a digital pattern generator, 6 denotes a pattern recognizing circuit, 7 denotes a voice pattern memory and a numeral 8 denotes a display device.

In the case of the personal voice pattern carrying card system of the arrangement shown in Fig. 1, it is assumed that a computer, word processor or the like is employed as the input apparatus. The system includes the personal voice pattern carrying card 1 (hereinafter referred to simply as the card), the voice input apparatus 2, the microphone 3 and

the display device 8. The card 1 may be implemented in the form of an IC card or the like and includes the voice pattern memory 7 and the pattern identifying circuit 6. The voice pattern memory 7 is previously loaded with a number of voice patterns based on the utterance by the holder of the card 1 (which patterns may correspond to the characters imprinted on keys of a conventional keyboard or idioms used frequently by the card holder) together with the character information of the characters or idioms corresponding to the voice patterns. In that case, the voice pattern is digitized before being stored in the card, while the corresponding character information of the characters or idioms is also digitized into a digital signal of eight bits or the like and stored in the card together with the digitized patterns in one-to-one correspondence, which can be realized, for example, by placing the digitized character information immediately succeeding to the digitized voice pattern for each of the character information.

Now, suppose that the holder or possessors of the card 1 performs the voice input operation. In that case, he or she places the card which stores therein his or her own voice patterns and the corresponding character information prepared previously in the manner mentioned above in a voice input apparatus 2 to be utilized, to thereby realize connection between the card 1 and the voice input apparatus 2.

Subsequently, the user of the card 1 utters the character information to be inputted, which information is caught by the microphone 2 to be supplied to the voice input apparatus 2. The input voice signal is then digitized by the voice detecting circuit 4 and the digital pattern generator 5 (in the manner similar to the storage of the voice pattern in the card), the signal resulting from the digitization being supplied to the pattern identification circuit 6 of the card 1.

The pattern identification circuit 6 implemented in the card 1 in turn detects the voice pattern which coincides with the voice pattern retrieved from those stored in the card 1, whereupon the corresponding character information (which naturally coincides with the character information produced by the card user) is inputted to the computer or word processor and at the same time displayed on the display device 8.

As will be appreciated from the above description, according to the teaching of the present invention, the voice input information is necessarily compared and collated with the voice pattern of the person by whom the voice information was inputted. In this way, even a large number of character information which correspond to the characters or the like on the keys of the conventional keyboard can be accurately selected with the aid of the voice input. In this connection, it should be understood that the character information is never restricted to the characters mentioned above but may be constituted by an idiom or short sentence used frequency.

Besides, since the voice patterns for collation are stored in the card, a single voice input apparatus can be used by many people who possess these cards.

Fig. 2 is a view showing an arrangement of the personal voice pattern carrying card system according to another embodiment of the present invention. In this figure like parts as those shown in Fig. 1 are denoted by like reference numerals, respectively.

The system shown in Fig. 2 differs from the one shown in Fig. 1 in that the pattern identifying circuit 6 is incorporated in the voice input apparatus 2 instead of being realized in the card 1.

Operation of the system shown in Fig. 2 is substantially similar to that of the system shown in Fig. 1 except that the voice pattern generated by the digital pattern generator 5 is not transferred to the card but made use of in the voice input apparatus 2 for verification of the coincidence, since the pattern identification circuit 6 is incorporated in the voice input apparatus 2.

In the case of the system shown in Fig. 2, an IC or the like card incorporating no active elements such as, for example, a memory card or optical card may be used as the card 1.

As a version of the system shown in Fig. 2, a buffer may be provided in the voice input apparatus 2, wherein at the stage of placing the card 1 in the voice input apparatus 2, the information stored in the card 1 may be transferred to the buffer to thereby allow the pattern identification circuit 6 to retrieve the contents of the buffer for verifying the coincidence. With this arrangement, the memory card of a low access speed can also be employed.

As will now be understood from the foregoing description, it is possible according to the teachings of the invention to realize easily the voice inputting with an enhanced efficiency while suppressing the likelihood of error to a minimum, wherein the user who wants to use the voice input apparatus is only required to have the personal voice pattern carrying card.

Claims

1. A method of identifying voice input information in a personal voice pattern carrying card system for applications where verification of voice input information is prerequisite, comprising steps of:

storing previously in said card voice patterns corresponding to a plurality of character informa-

tion, said voice patterns being derived from the utterance of the possessor of said card;

setting said card in a voice input apparatus;

converting character information uttered by the card possessor into a voice pattern;

retrieving the voice pattern resulting from said conversion from said card; and

inputting the character information corresponding to said retrieved voice pattern.

2. A method of identifying voice input information according to claim 1, wherein said plurality of character information includes character information used in a keyboard.

3. A method of identifying voice input information according to claim 1, wherein said plurality of character information are those used in a keyboard and idioms or short sentence used frequently by the card processor.

4. A method of identifying voice input information according to claim 1, further including a step of displaying the character information.

5. A personal voice pattern carrying card system for apparatus in which verification of the voice input information is prerequisite for operation thereof, comprising:

a card (1) containing a plurality of character information and voice patterns (6) uttered by the possessor of said card, said voice patterns corresponding to said character information;

a voice input apparatus (2) including a microphone (3), a voice detecting circuit (4) and a digital pattern generator (5) for detecting a voice pattern uttered by the possessor of said card (1); and

pattern identifying means (6) for identifying the same voice pattern as said detected voice pattern from those contained in said card to produce character information corresponding to said identified voice pattern.

6. A personal voice pattern carrying card system according to claim 5, wherein said pattern identifying means (6) is incorporated in said voice input apparatus (2).

7. A personal voice pattern carrying card system according to claim 6, wherein a buffer to which the information carried by said card is temporarily transferred is incorporated in said voice input apparatus.

8. A personal voice pattern carrying card system according to claim 5, wherein said pattern identifying means (6) is incorporated within said card (1).

9. A card (1) including a plurality of character information and voice patterns of the possessor of said card, which patterns correspond to said plurality of character information.

10. A card according to claim 9, wherein said character information and said voice patterns are digitized.

11. A card containing a plurality of character information and voice patterns of the possessor of said card corresponding to said plurality of character information (7), and pattern identifying means (6) for identifying discriminatively the voice pattern from those contained in said card on the basis of a voice pattern uttered by the possessor of said card.

12. An apparatus for processing a card according to claim 9, comprising a microphone (3), a voice detecting means (4) and a digital pattern generator (5).

FIG. 1

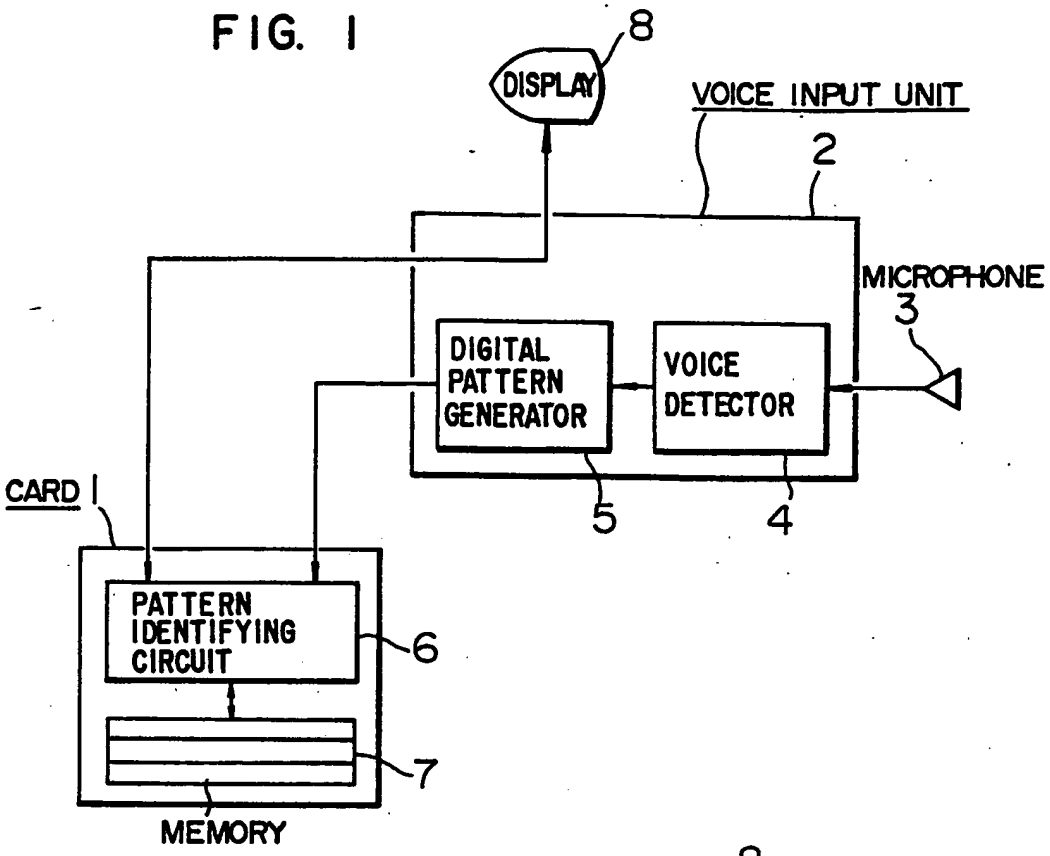
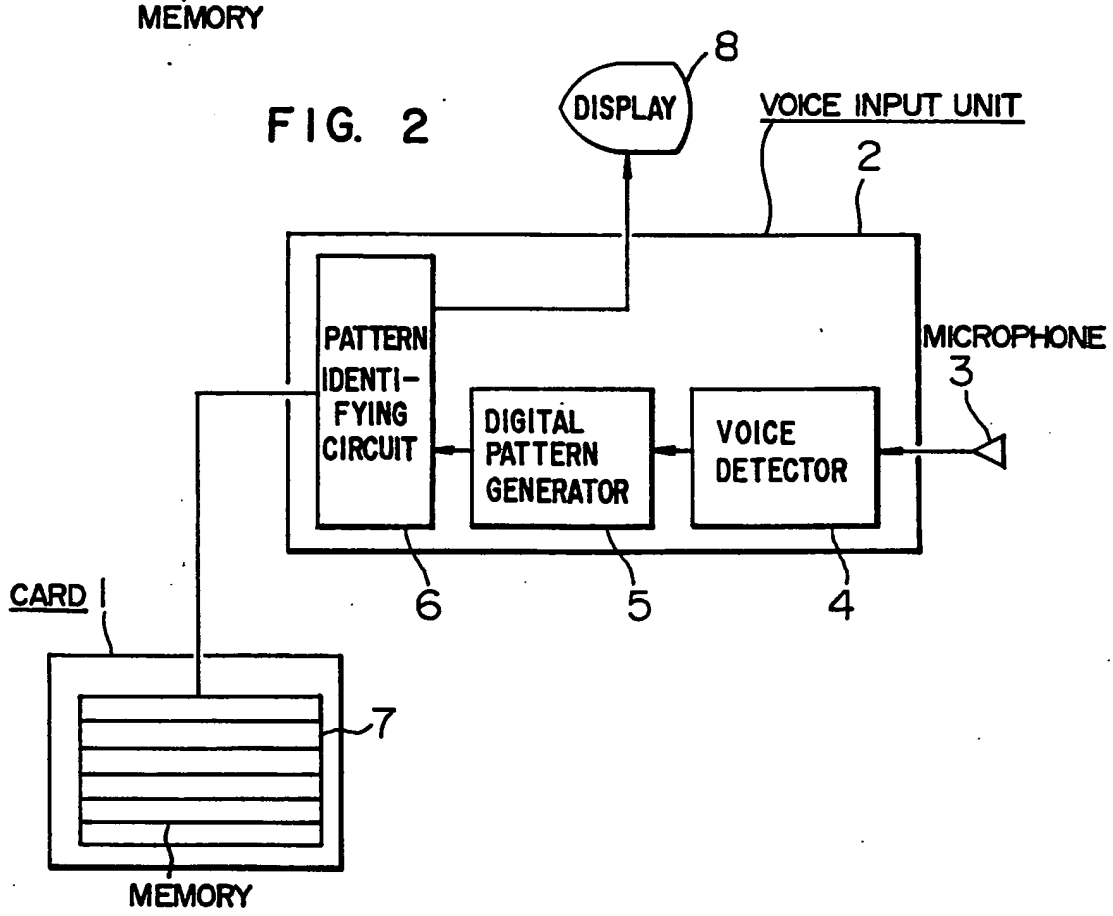

8
DISPLAY
VOICE INPUT UNIT
2
MICROPHONE
3
DIGITAL PATTERN GENERATOR
VOICE DETECTOR
5
4
CARD
PATTERN IDENTIFYING CIRCUIT
6
7
MEMORY

FIG. 2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